

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
2 June 2005 (02.06.2005)

PCT

(10) International Publication Number
WO 2005/050324 A3

(51) International Patent Classification⁷: **G03F 7/20**,
H01L 21/47

(21) International Application Number:
PCT/EP2004/012248

(22) International Filing Date: 28 October 2004 (28.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03078487.0 5 November 2003 (05.11.2003) EP
04075712.2 10 March 2004 (10.03.2004) EP
60/551,629 10 March 2004 (10.03.2004) US
04075984.7 31 March 2004 (31.03.2004) EP
04077144.6 23 July 2004 (23.07.2004) EP

(71) Applicant (for all designated States except US): **DSM
IP ASSETS B.V.** [NL/NL]; Het Overloon 1, NL-6411 Te
Heerlen (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **JAHROMI, Shahab**
[NL/NL]; Foldersdreef 32, NL-6216 TE Maastricht (NL).
WIENKE, Dietrich [DE/NL]; Beuk-Straat 9, NL-6181
KV Elsloo (NL). **BREMER, Leonardus, Gerardus,**
Bernardus [NL/BE]; Clos Robinson 19, B-4600 Vise
(BE).

(74) Agent: **DORRESTIJN, Antoon**; DSM Intellectual Prop-
erty, P.O. Box 9, 6160 MA Geleen (NL).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) Date of publication of the international search report:
22 September 2005

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: A METHOD AND APPARATUS FOR PRODUCING MICROCHIPS

(57) Abstract: Method for producing microchips by using immersion lithography, wherein the immersion fluid comprises an addi-
tive so that the refractive index of the immersion fluid is increased relative to the fluid not comprising the additive. The exposure
light in the method has improved resolution, so that microchips having an increased integration density are obtained. The invention
also relates to the immersion fluid and an apparatus for immersion lithography, comprising the immersion fluid.

WO 2005/050324 A3